Senate Natural Resources and Water Committee Hearing

January 31, 2006

Governor's Strategic Growth Plan

Flood Protection and
Clean, Safe, Reliable Water Supply
Bond and Financing Acts of 2006 and 2010

presentation by:

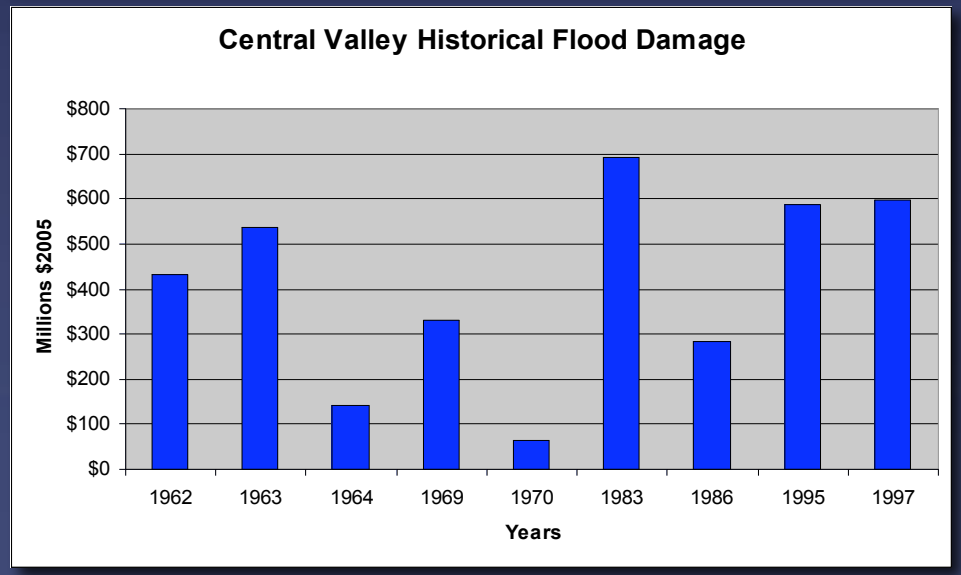
Lester A. Snow, Director

Department of Water Resources

Building California's Water Future

- California has specific plans for water quality, water supply, and flood protection
- The Governor's Strategic Growth Plan provides the investment strategy to carry out these plans

California's Flood Crisis



January 2005: DWR White Paper on California's Flood Crisis

Key Challenges:

- Aging Infrastructure
- Increasing development in floodplains
- Court decisions have increased the State's liability
- State, local, and federal funding for Flood Management had declined

January 2005: DWR White Paper on California's Flood Crisis

Key Strategies:

- Maintain Existing Infrastructure
- Address Deferred Maintenance and Deficiencies
- Upgrade Levee System
- Update Floodplain Maps and Improve Public Notification
- Mandatory Flood Insurance
- Sustainable Funding

August/September 2005:
Hurricanes Katrina and Rita

August/September 2005:
Hurricanes Katrina and Rita

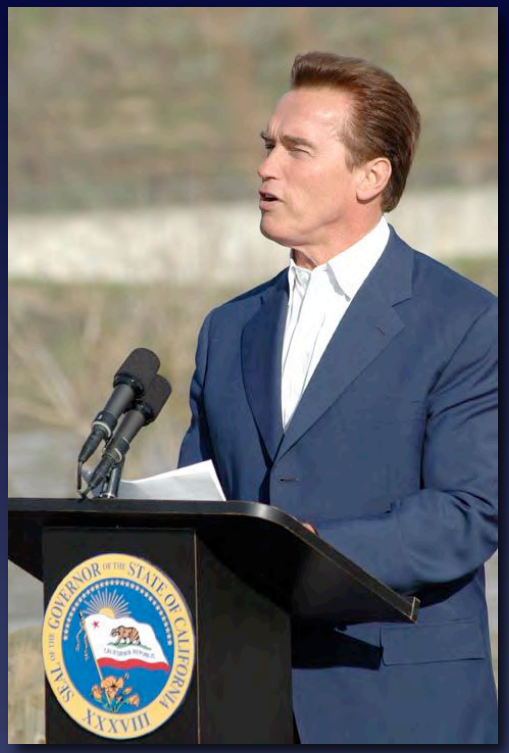
Flood Damage and Economic Losses ~ $100-200 billion

December 15, 2005:

Bush Administration requests $3.1 billion for Corps of Engineers:

- $1.5 billion to repair damage to levee system
- $1.6 billion to upgrade levees to protect against future Category 4 hurricanes

Flood Protection and Clean, Safe and Reliable Water Supply Bond and Financing Acts of 2006 and 2010



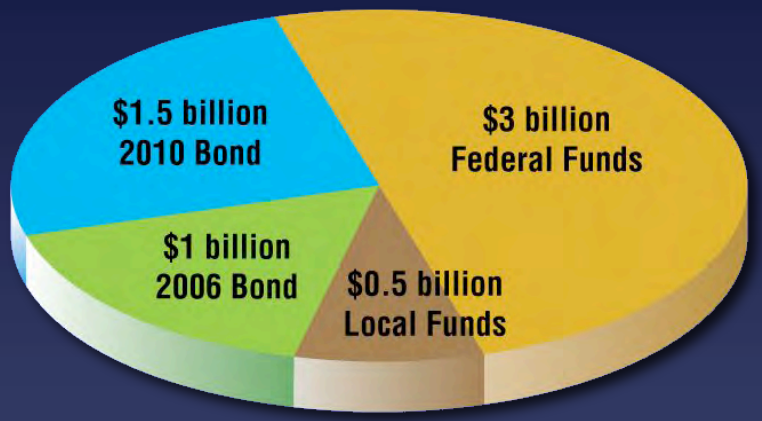
Flood Control

	2006	2010
1. Repair of State-Federal Project Levees and Facilities	$210 million	$300 million
2. Flood Control and Levee System Improvements	$200 million	$200 million
3. Delta Levee Subventions and Special Projects	$210 million	$700 million
4. Flood Control Subventions	$250 million	$200 million
5. Floodplain Mapping	$ 90 million	$ 0
6. Floodway Corridor Program	$ 40 million	$100 million
TOTAL	**$ 1 billion**	**$ 1.5 billion**

Building California's Water Future

Protecting California from Devastating Floods

- **Bond funds will leverage other flood investments**



Flood Control Investment over 10 Years:

	State	Federal	Local	Total
1. Repair of State-Federal Project Levees and Facilities	$ 510 million	$ 300 million	$ 30 million	$ 840 million
2. Flood Control and Levee System Improvements	$ 400 million	$ 930 million	$ 150 million	$1,480 million
3. Delta Levee Subventions and Special Projects	$ 910 million	$ 400 million	$ 100 million	$1,410 million
4. Flood Control Subventions	$ 450 million	$1,190 million	$ 190 million	$1,830 million
5. Floodplain Mapping	$ 90 million	$ 0	$ 0	$ 90 million
6. Floodway Corridor Program	$ 140 million	$ 180 million	$ 30 million	$ 350 million
TOTAL	**$ 2.5 billion**	**$ 3.0 billion**	**$ 0.5 billion**	**$ 6.0 billion**

1. Repair of State-Federal Project Levees and Facilities

2006 Bond - $210 million to address deterioration and design deficiencies in Facilities of State Plan of Flood Control:

$ 15 million for Sediment Removal
$ 25 million for Facility Repairs
$ 50 million for Erosion Repairs
$ 50 million for Levee Evaluations
$ 20 million for Mitigation Banks
$ 50 million for Levee and other Repairs

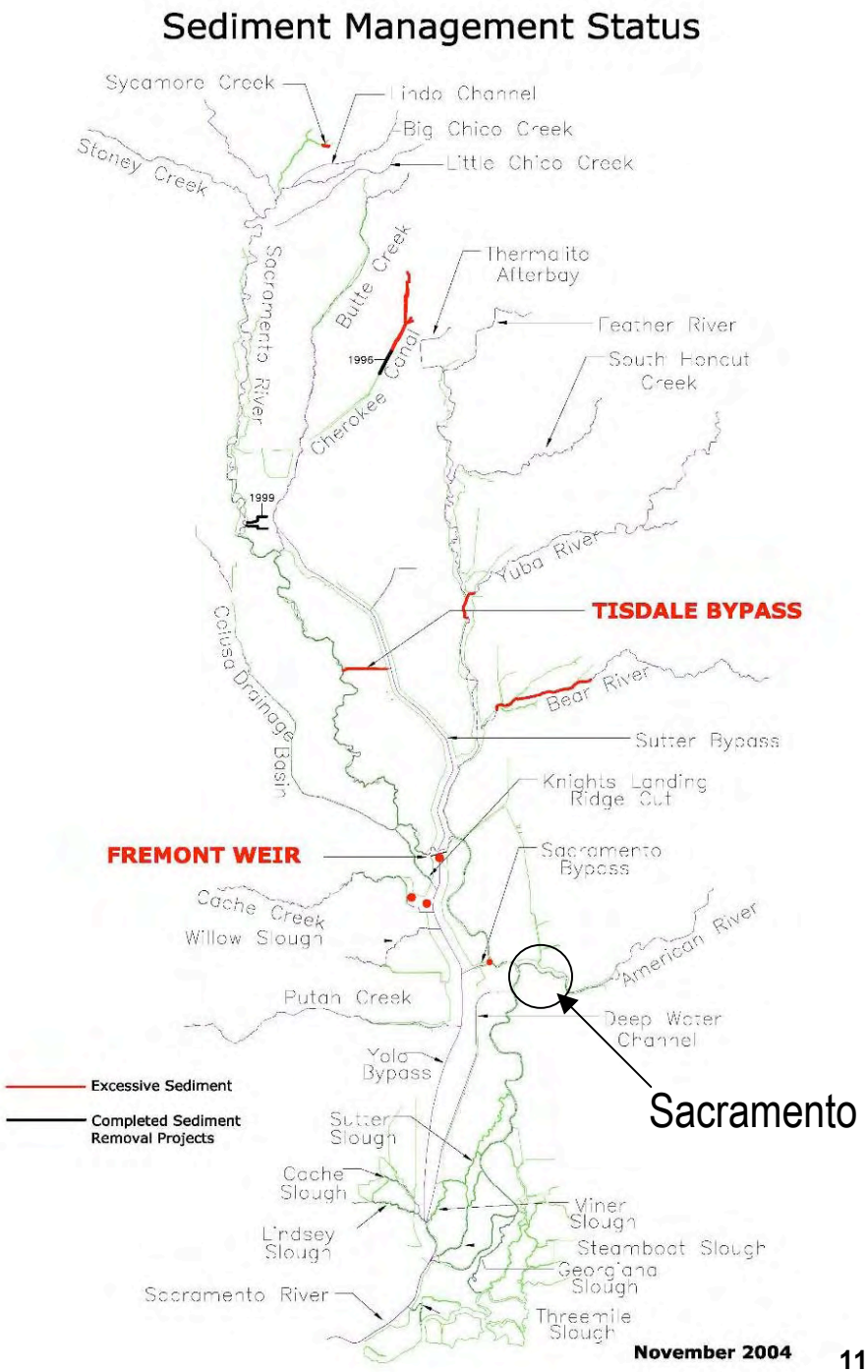
2010 Bond - $300 million to address deterioration and design deficiencies in Facilities of State Plan of Flood Control:

$100 million for Erosion Repair and Sediment Removal
$100 million for Levee Evaluations and Repairs
$100 million for Levee and other Repairs

SEDIMENT REMOVAL

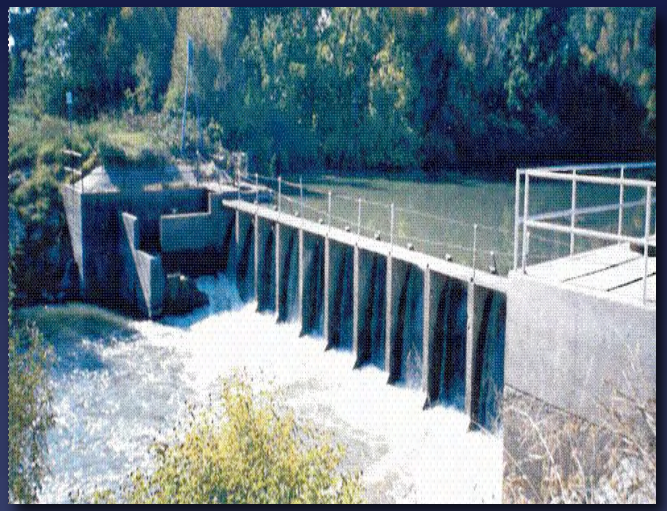
Remove 4 million cubic yards from:

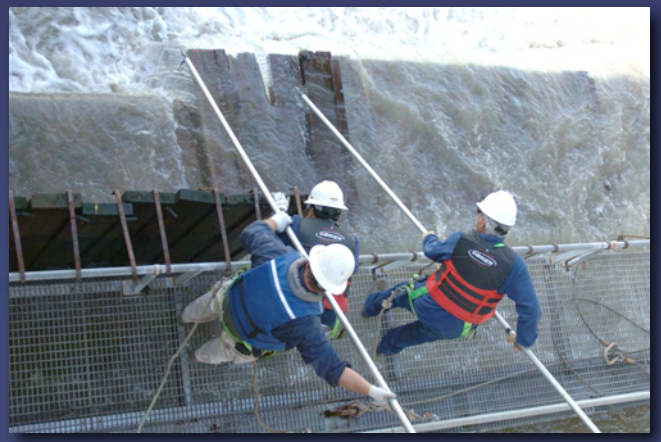
- Tisdale Bypass
- Bear River
- Cherokee Canal
- Feather River
- Sycamore Creek
- Yolo Bypass
- Sacramento Bypass



Facility Repairs

- Replace Weir No. 2 (Sutter Bypass)
- Refurbish Pumps, Motors and Control Systems
- Replace Gates, Seals, and Control Systems
- Provide Fish Ladders/Screens
- Upgrade Buildings, Appurtenances, and Remediate Groundwater Contamination at Maint. Yards

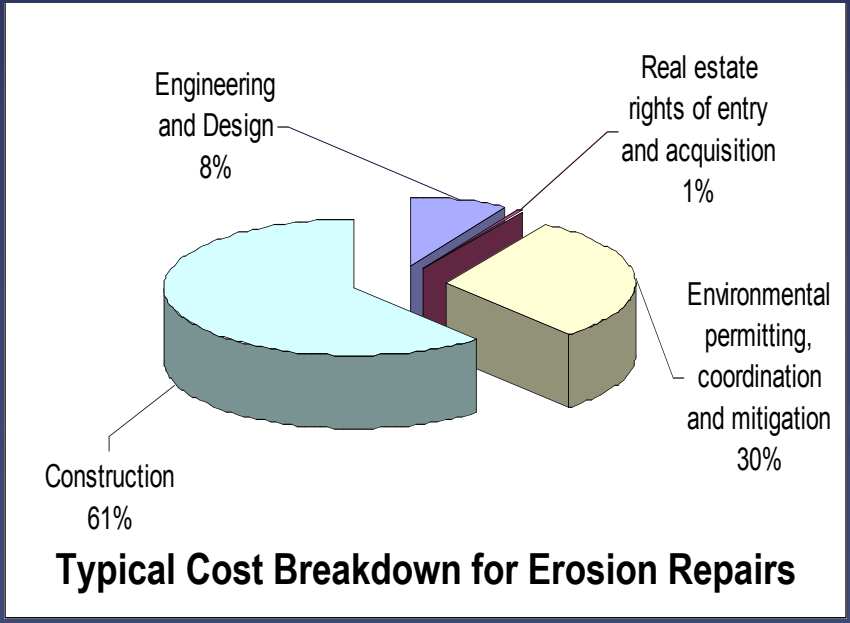




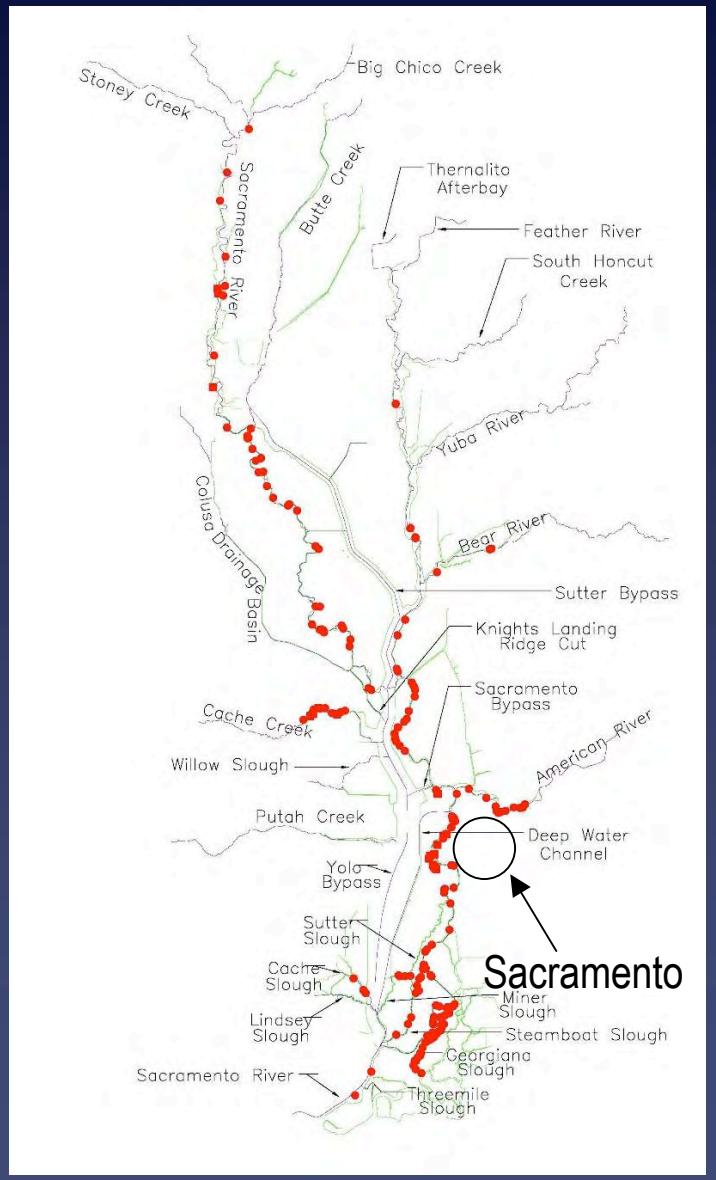
Levee and Bank Erosion

Levee and Bank Erosion Sites

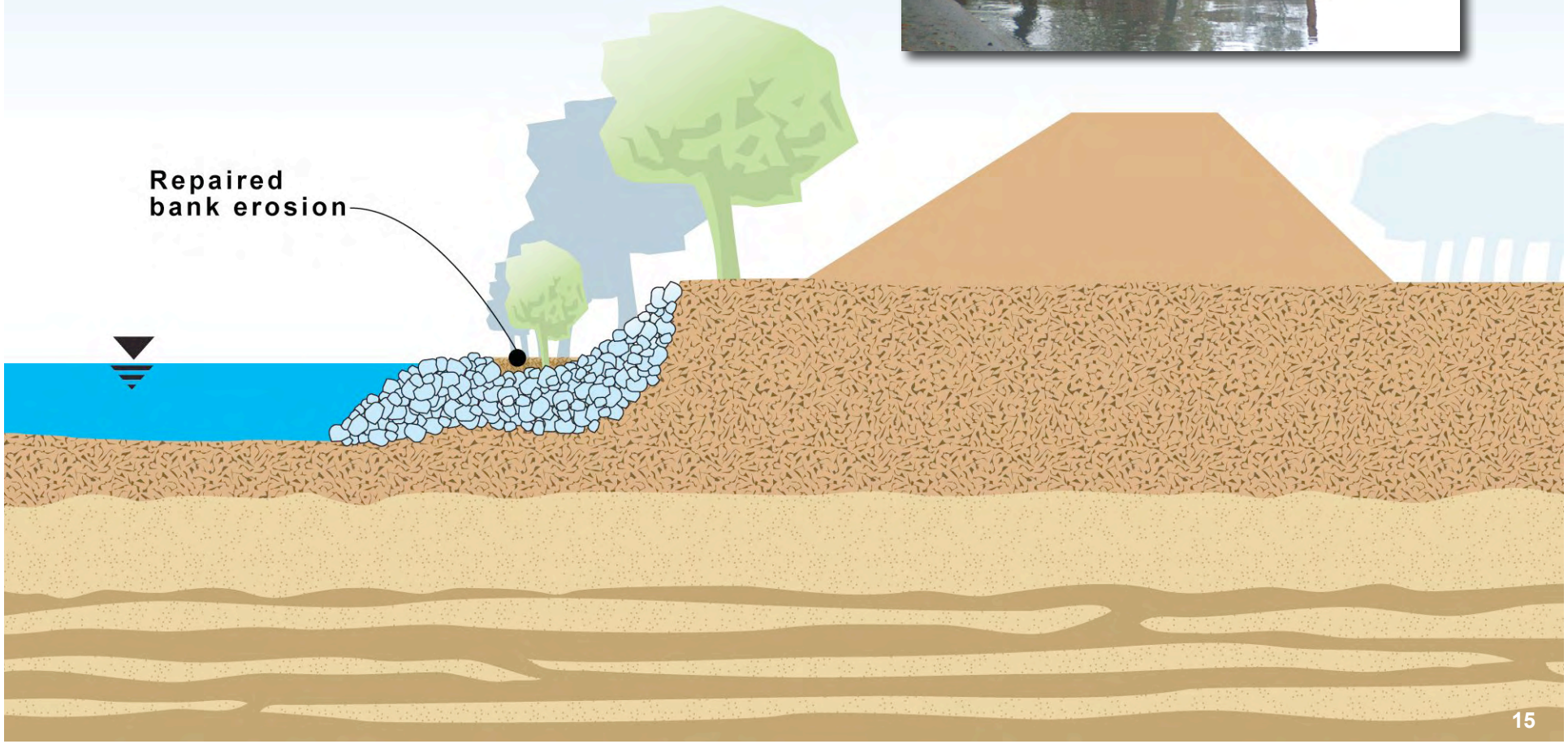
- 174 total sites (>100,000 feet)
- 34 critical / potentially critical sites
- 140 non-critical sites need monitoring
- Repair costs range between $1,000 and $9,000 per linear foot



Typical Cost Breakdown for Erosion Repairs



Bank Erosion Repairs



Bank Erosion Repair Case History: Sacramento River Mile 56.7

Summary: Initial repair consisted of building a rock bench at the waterline to prevent further erosion and scour damage. Environmental features were incorporated into the design, including irregular shoreline, placement of wood material, and plantings. During initial construction, upper slope was found to be unstable requiring additional construction work to be done in 2006

Project Cost:

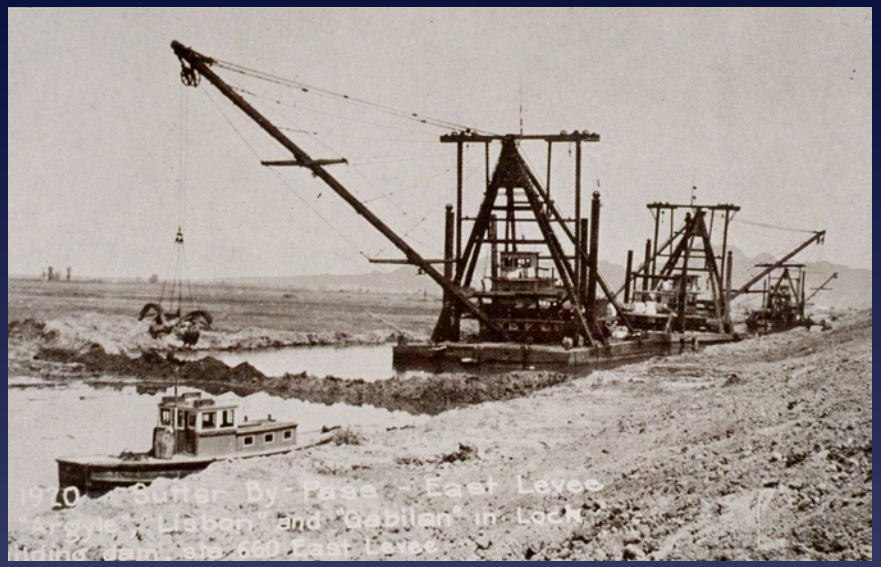
Investigations (geotech, hydraulic, mapping):	$ 32,634
Engineering Design:	$ 387,882
Real Estate R/W:	$ 20,687
Environmental Permitting:	$ 551,981
Environmental mitigation/restoration:	$ 474,228
Future Environmental mitigation/restoration:	$ 1,250,000*
Construction Administration and Inspection:	$ 197,491
Construction Contract – Phase I:	$ 3,556,889
Future Construction Contract – Phase II:	$ 4,220,000*
TOTAL:	**$10,700,000**

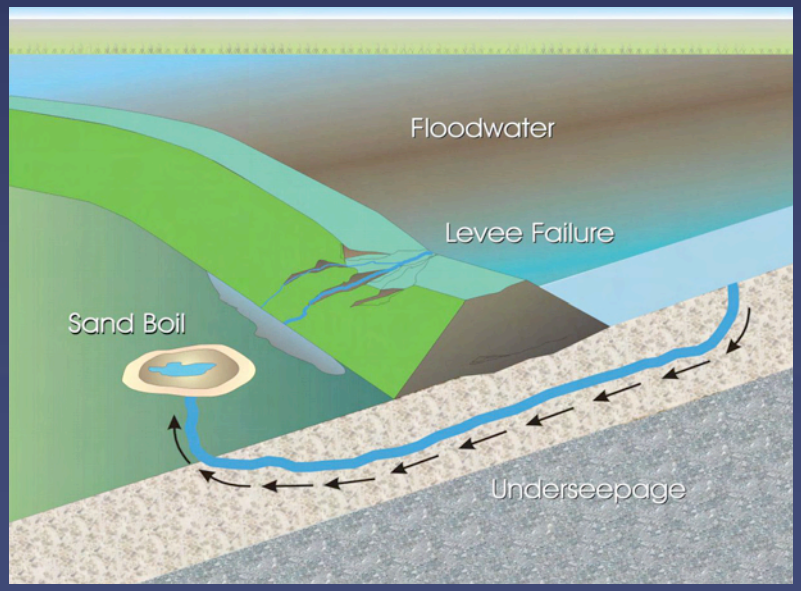
*** Estimated future cost**

Cost Shares: Federal 75% State 25%

Levee Design Deficiencies

- Old levees, many originally built by farmers, most without adequate engineering.
- Seepage problems under and through the levees.
- *Paterno Decision* faulted the State for not finding and repairing levee deficiencies.

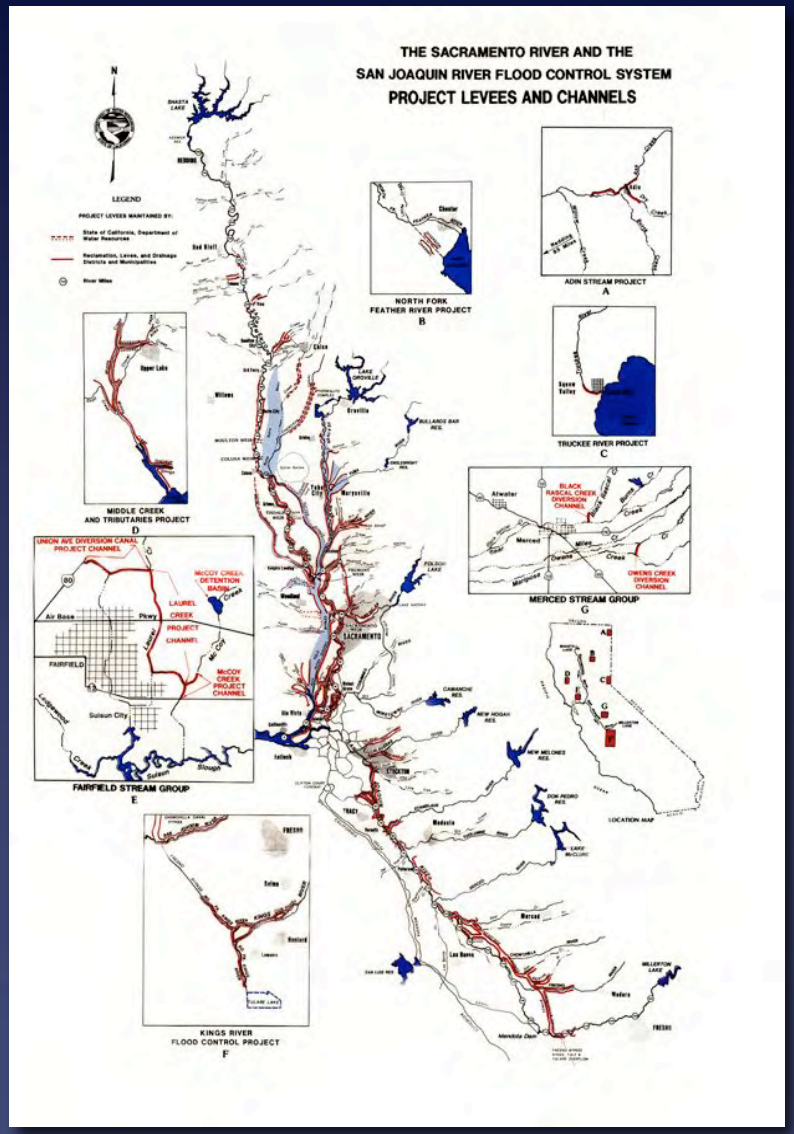




New System Evaluations

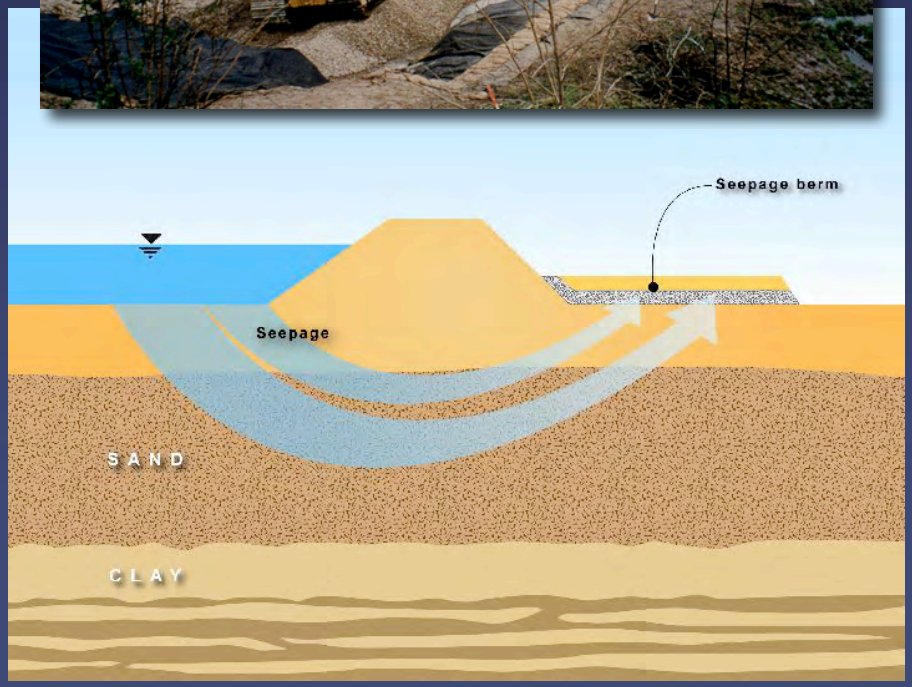
- New Corps seepage design standards – new levee evaluations needed.
- Engineering evaluations are anticipated to cost $50 to $100 million.

- Repairs are likely to cost hundreds of millions of dollars.

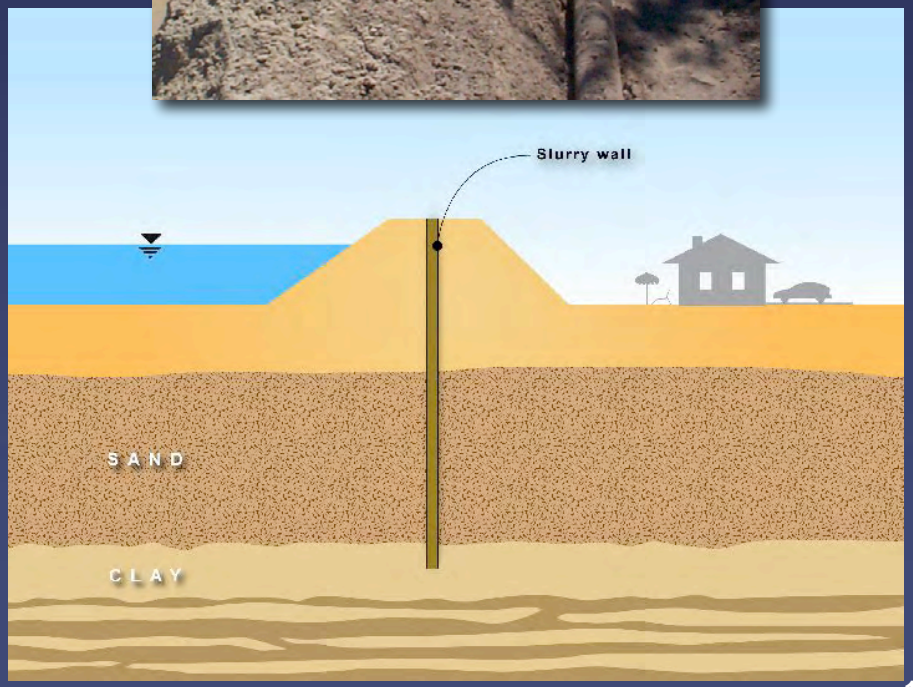


Levee Seepage Repairs:

Seepage Berm



Slurry Wall



Repair of State-Federal Project Levees

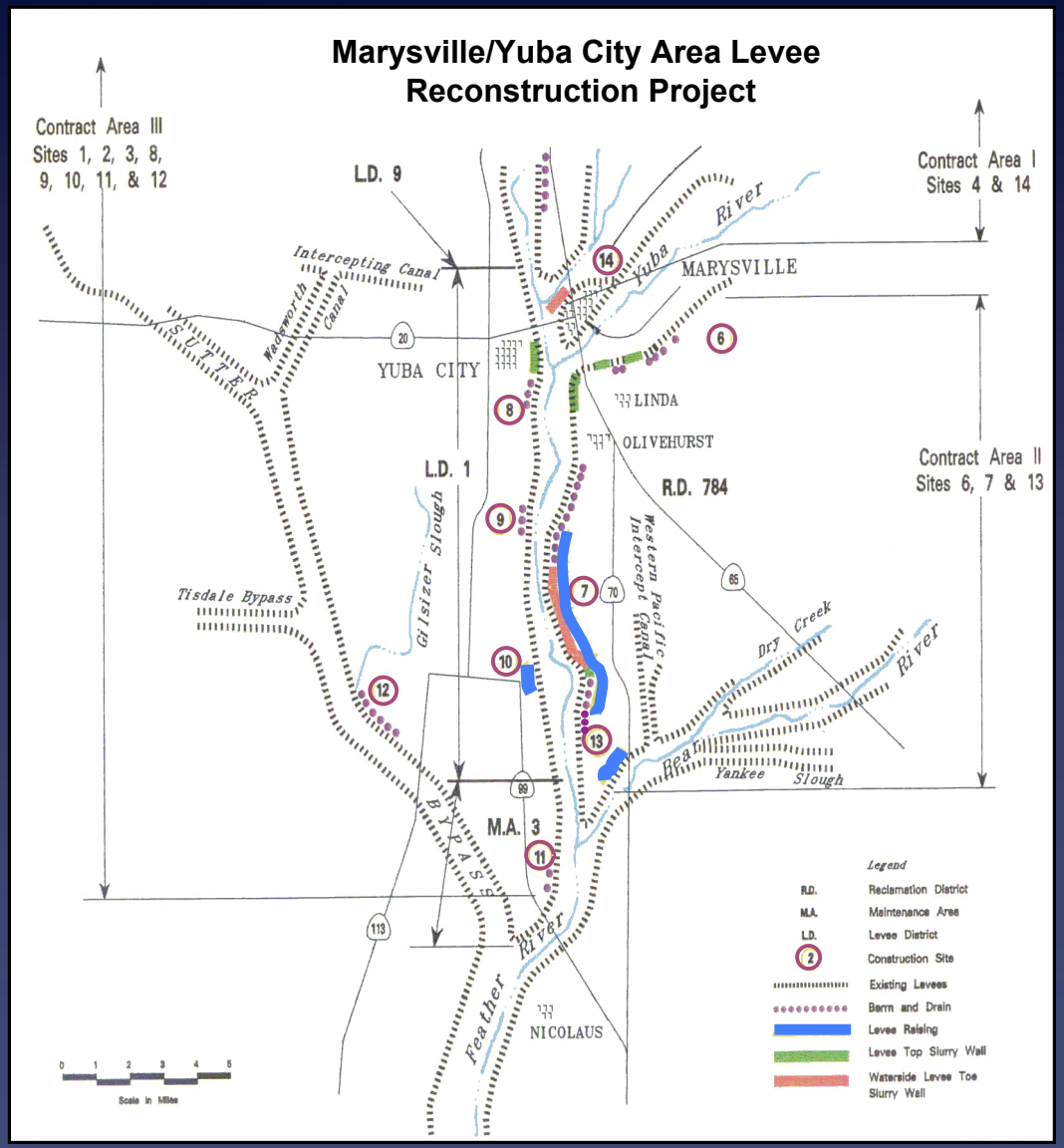
Marysville/Yuba City Area Levee Reconstruction Project

- Construct 7.3 miles of slurry wall
- Construct 13.2 miles of toe drains and berms
- Raise height of 5 miles of levees
- Relocate 1 mile of irrigation ditch away from levee toe

Estimated Cost: $50 Million

Cost Shares:

Federal	75.0%
State	17.5%
Local	7.5%



MARYSVILLE/YUBA CITY AREA LEVEE RECONSTRUCTION PROJECT

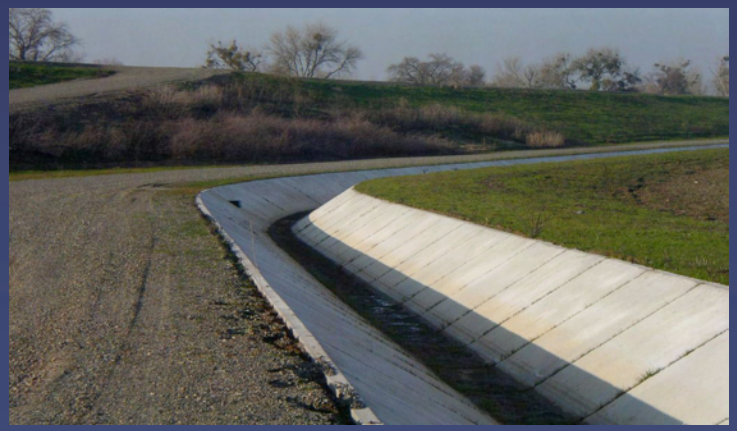
During Construction

Pump Station Relocation

Seepage Berm

After Construction

New Pump Station, Seepage Berm and Wells



Seepage Berm and Collection Trench

2. Flood Control and Levee Improvements

Provides High Levels of Flood Protection for Urban Areas –

Most of this funding will provide the State Cost Share of a Federal Corps of Engineers Flood Control Project:

For 2006 Bond - $200 million for the following Projects:

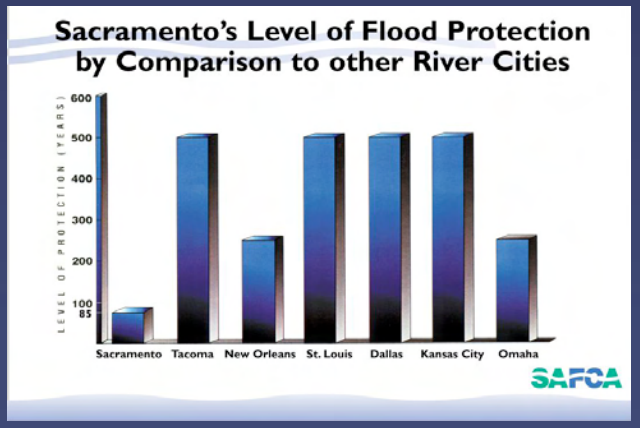
$ 70 million for Folsom Dam Modifications/Raise
$ 25 million for American River Common Features
$ 10 million for South Sacramento Streams
$ 10 million for Enhanced Emergency Preparedness

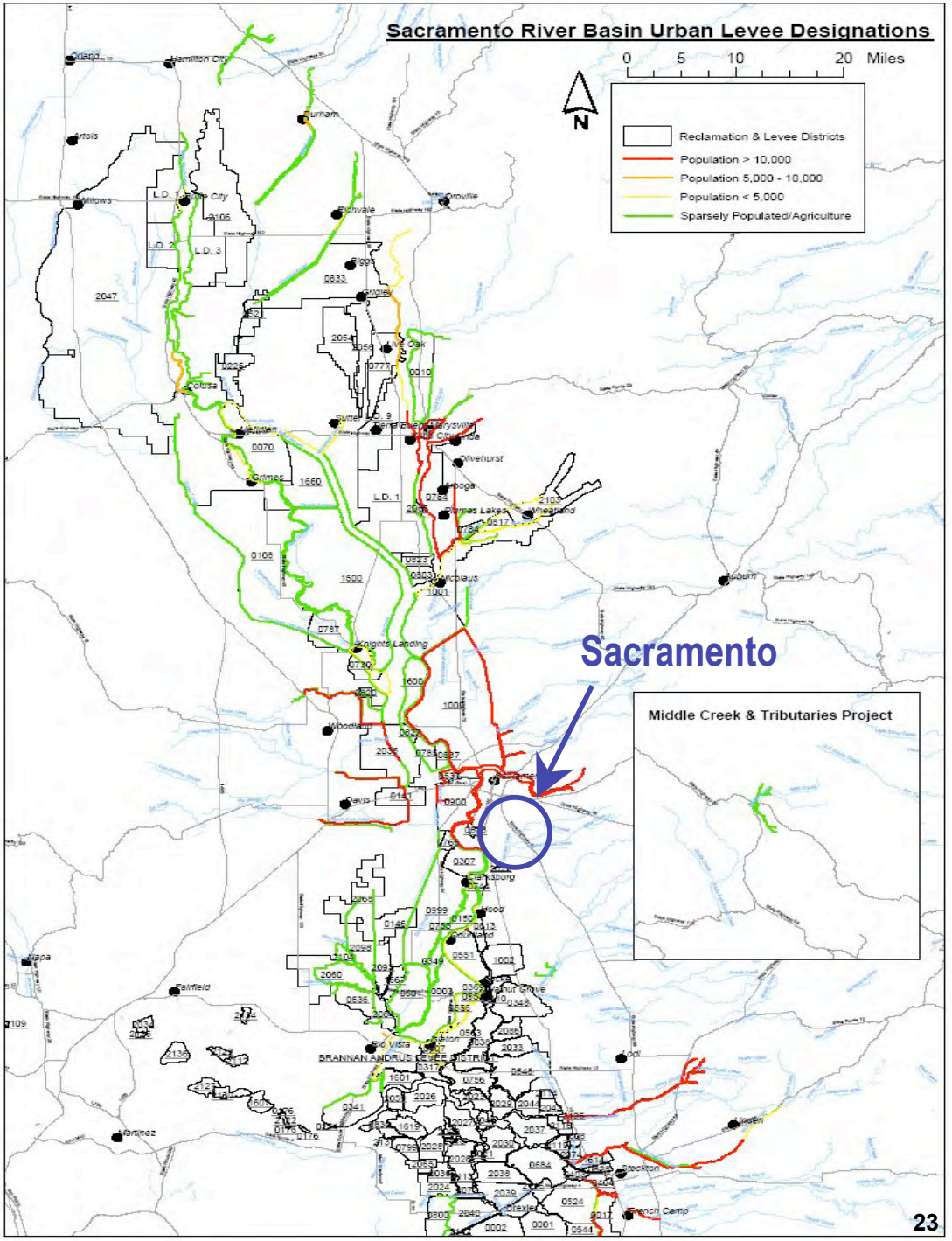
$ 85 million to supplement above repairs
or be available for other urban areas

For 2010 Bond - $200 million for State Cost Share to Provide High Levels of Flood Protection for Urban Areas

Sacramento Valley

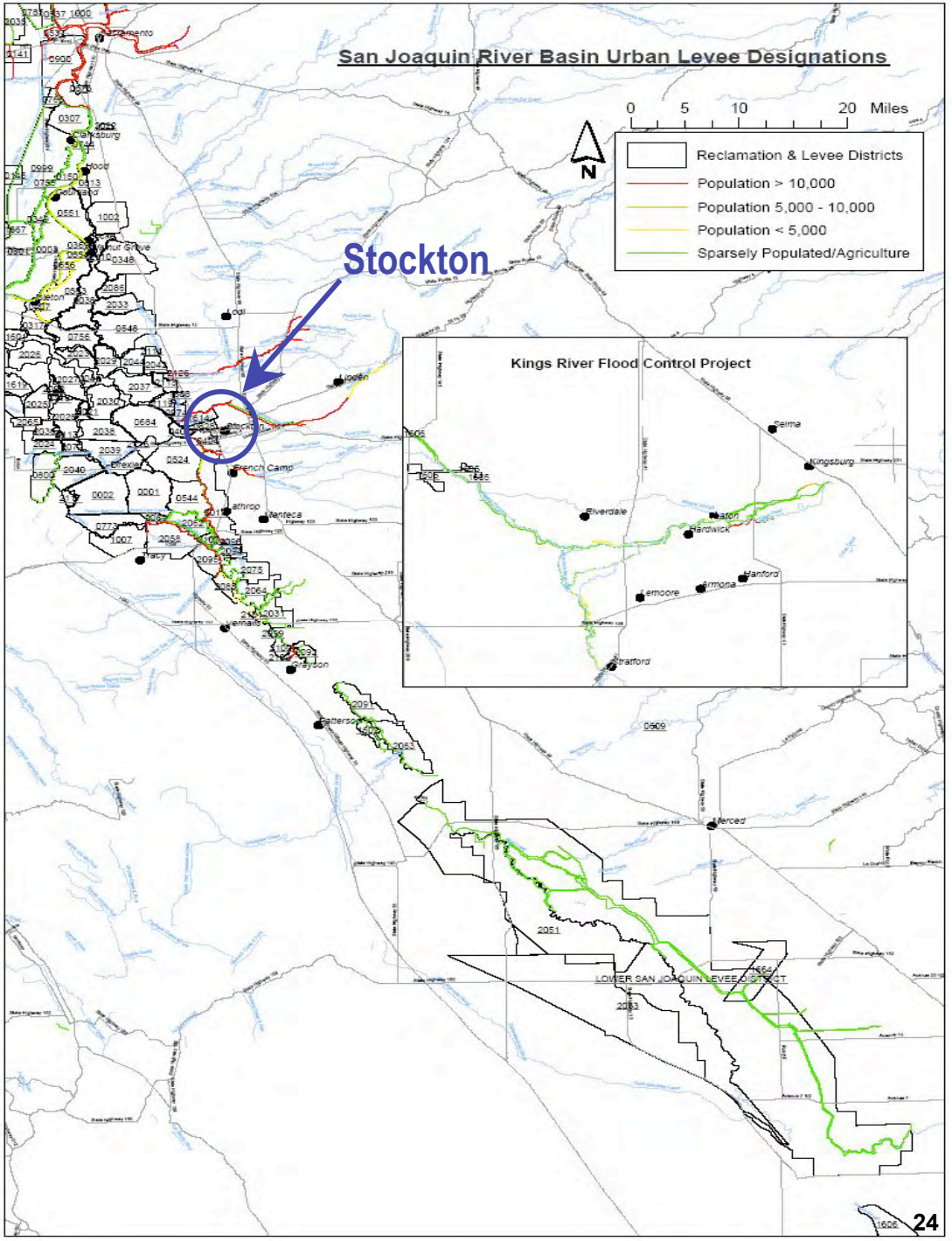
- Urban levees
- Rural levees

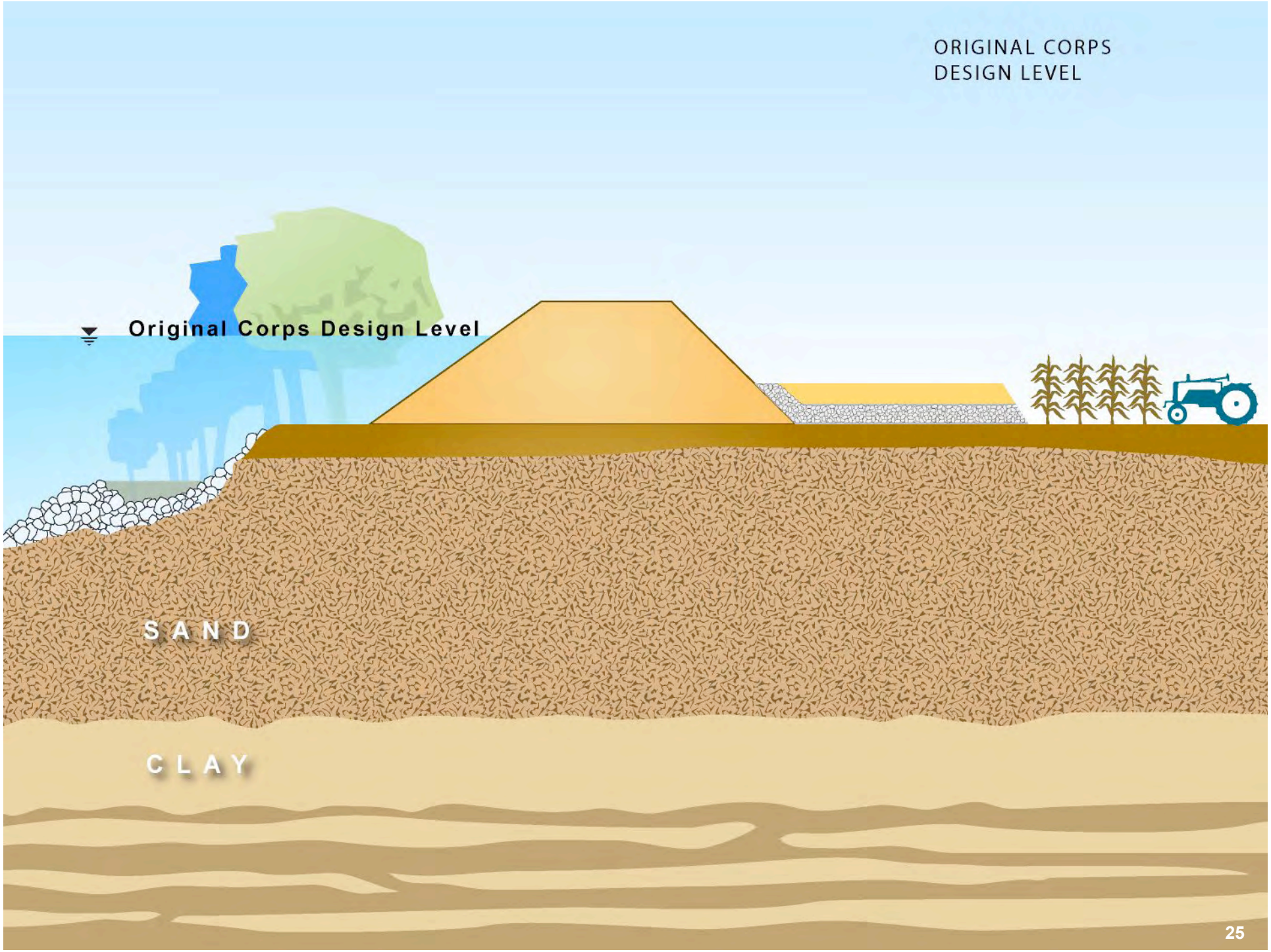


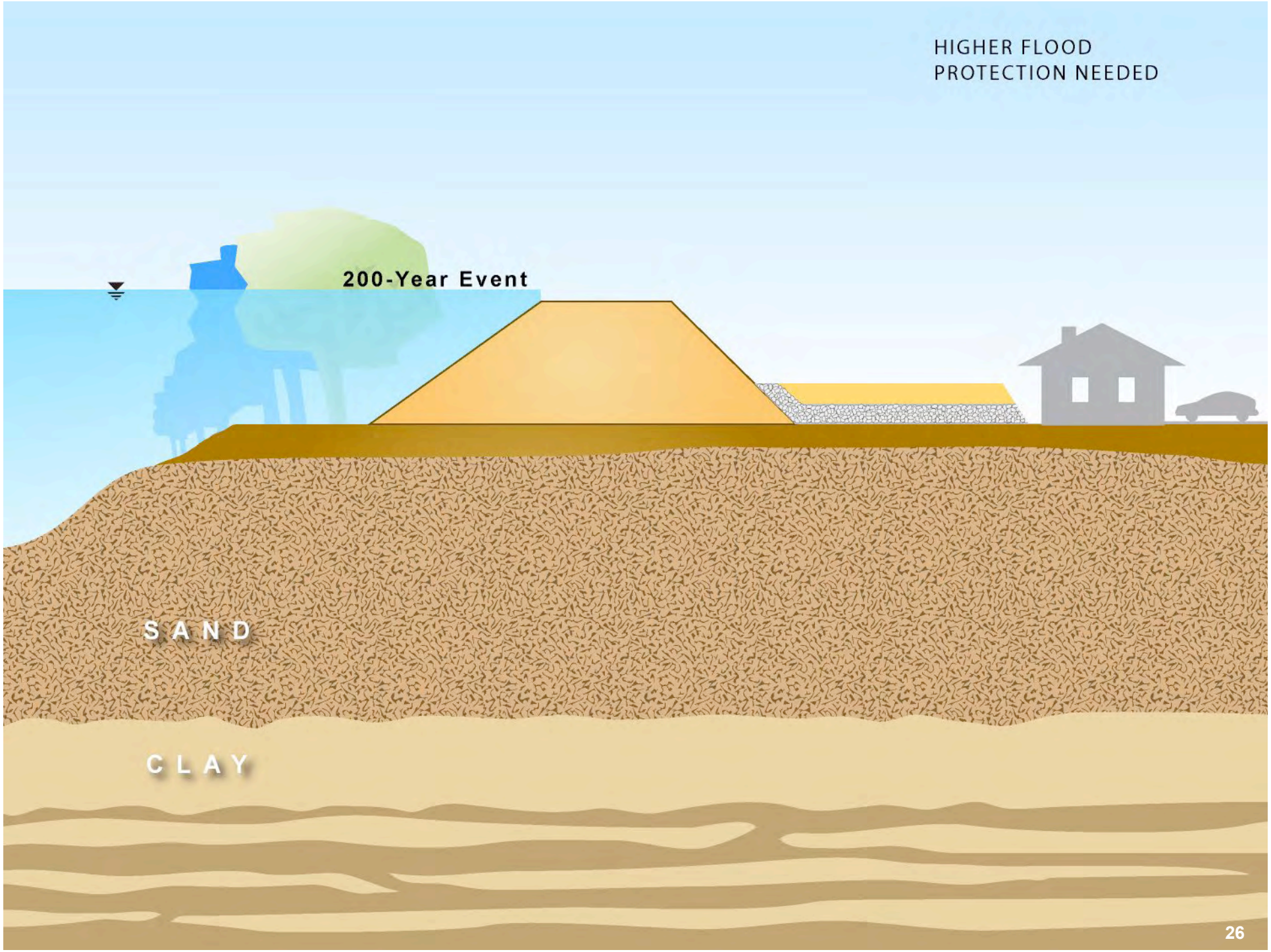


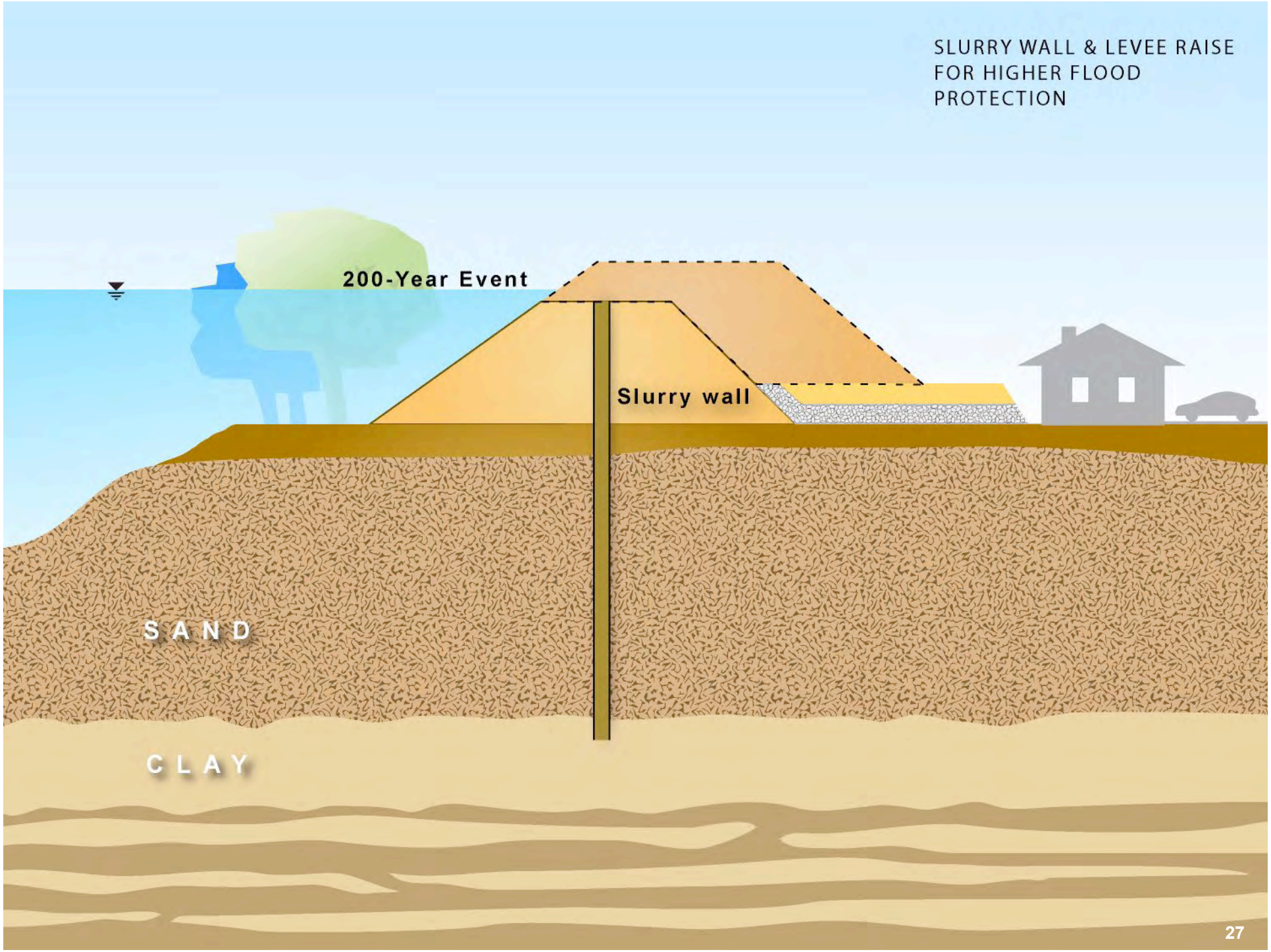
San Joaquin Valley

- Urban levees
- Rural levees




ORIGINAL CORPS
DESIGN LEVEL
Original Corps Design Level
SAND
CLAY


HIGHER FLOOD
PROTECTION NEEDED
200-Year Event
SAND
CLAY


SLURRY WALL & LEVEE RAISE
FOR HIGHER FLOOD
PROTECTION
200-Year Event
Slurry wall
SAND
CLAY

Flood Control & Levee System Improvements

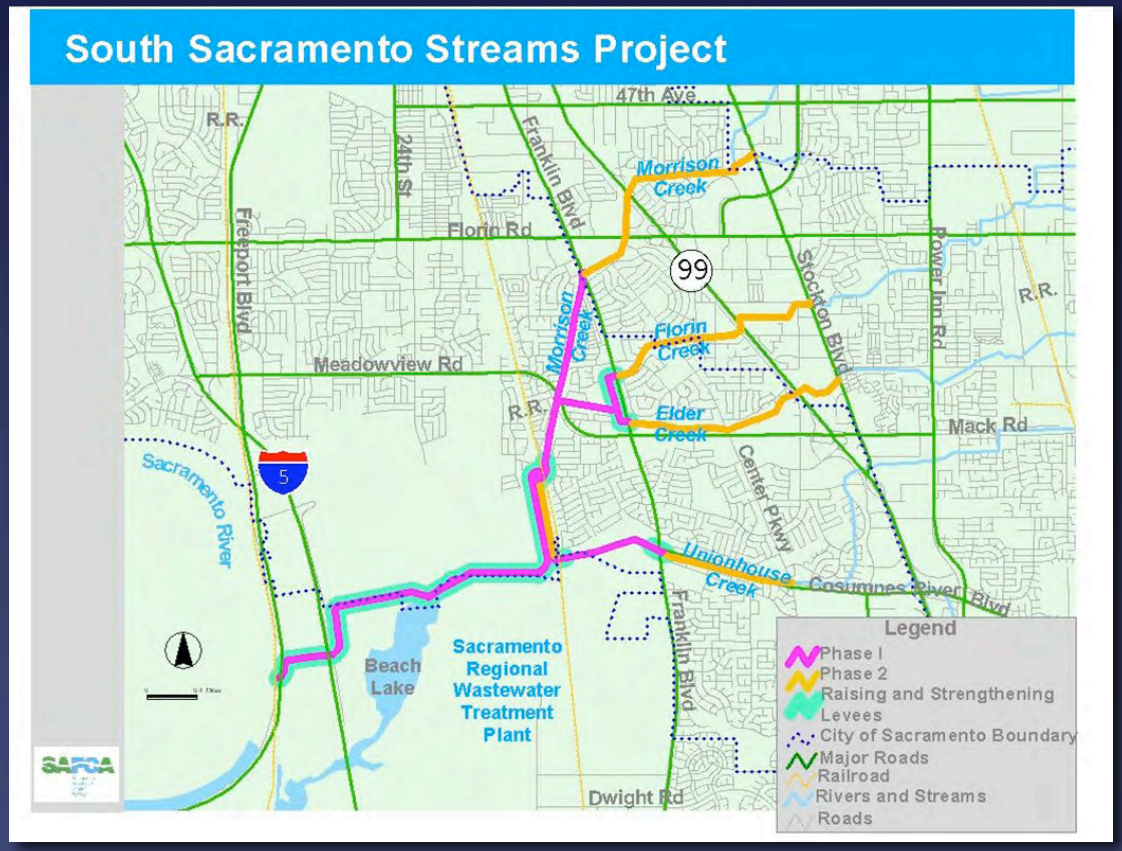
South Sacramento County Streams Project

- Improve to over 200-year level of flood protection
- Protect over 100,000 people
- Construct floodwalls; raise, extend, and widen levees; retrofit bridges; excavate channels; and construct box culverts

Estimated Cost: $86 Million

Cost Shares:

Federal	65.0%
State	24.5%
Local	10.5%



Flood Control & Levee System Improvements

South Sacramento County Streams Project

3. Delta Levee Subventions and Special Projects

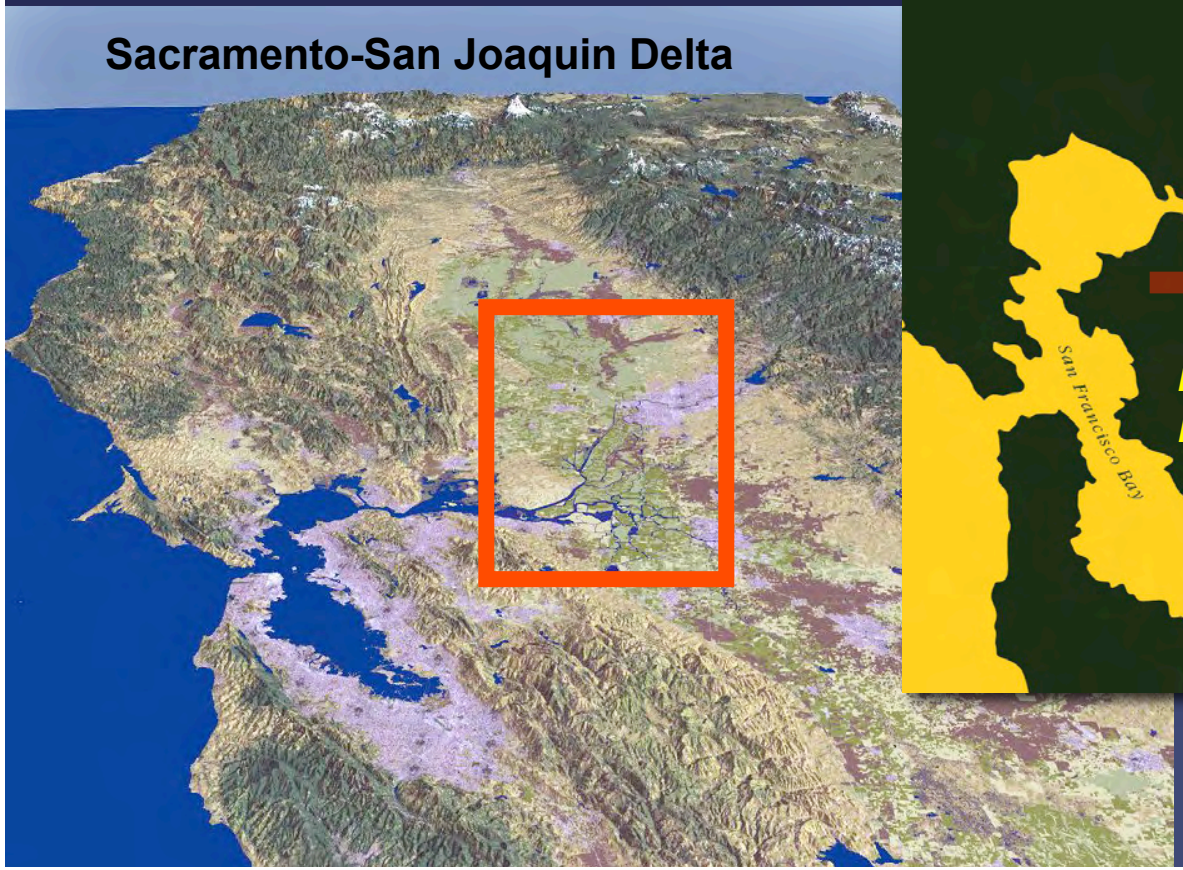
For 2006 Bond - $210 million: $60 million for Delta Levee Maintenance Subventions
$150 million for Special Flood Control Projects

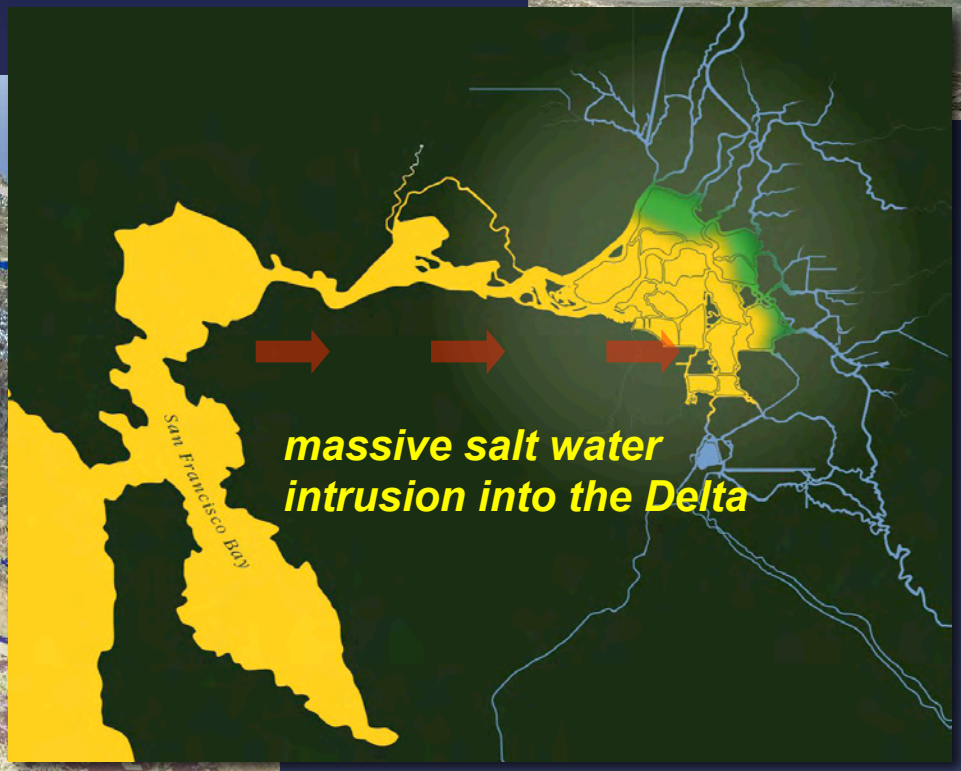
For 2010 Bond - $700 million: $60 million for Delta Levee Maintenance Subventions
$640 million for Special Flood Control Projects

FLOOD SCENARIO: Sacramento-San Joaquin Delta

- Massive Levee Failure in the Sacramento-San Joaquin Delta (from large flood or seismic events)

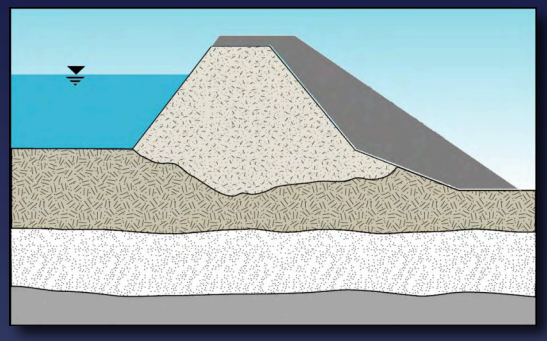
Up to $30 to $40 billion in damage/economic losses in first 5 years following massive levee failure





3. Delta Levee Subventions and Special Projects

2006 Bond - $210 million



$60 million for Delta Levee Maintenance Subventions

- Levee Maintenance in Delta and Suisun Marsh
- Levee Upgrades to PL84-99 Standards
- Consistent with DWR, CALFED, and DRMS objectives

$150 million for Special Flood Control Projects

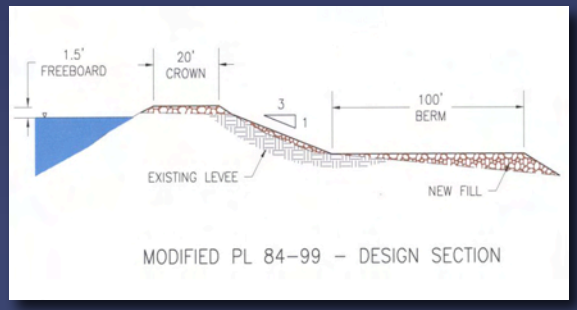
- Levee Upgrades to PL84-99 Standards
- Demonstration Projects to Reduce Seismic Risks
- Projects to Reduce Island Subsidence
- Mitigation Banking
- Catastrophe Mitigation Actions:
  - Emergency Response Planning
  - Prepositioning of equipment and materials
  - Acquisition of Property
- Cost Sharing with Federal and Local Agencies

3. Delta Levee Subventions and Special Projects

2010 Bond - $700 million

$60 million for Delta Levee Maintenance Subventions

- Levee Maintenance in Delta and Suisun Marsh
- Levee Upgrades to PL84-99 Standards
- Consistent with DWR, CALFED, and DRMS objectives



$640 million for Special Flood Control Projects*

- Seismic Levee Upgrades/Setback Levees Initiated
- Plan Form Changes to Reduce Seismic Risks
- Levee Upgrades to PL84-99 Standards
- Mitigation Banking
- Projects to Reduce Island Subsidence
- Catastrophe Mitigation Actions
- Cost Sharing with Federal and Local Agencies

* *Prioritized using DWR, CALFED, and DRMS recommendations*

4. Flood Control Subventions

2006 Bond - $250 million for reimbursement to Local Agencies for State's share of Federal Project Construction *Outside* of the Central Valley

2010 Bond - $200 million for reimbursement to Local Agencies for State's share of Future Federal Project Construction *Outside* of the Central Valley

4. Flood Control Subventions

Major projects include:

- Guadalupe River (Santa Clara County)
- Lower Silver Creek (Santa Clara County)
- Napa River (Napa County)
- Santa Ana River (Orange, San Bernardino, Riverside Counties)

Napa, 2006

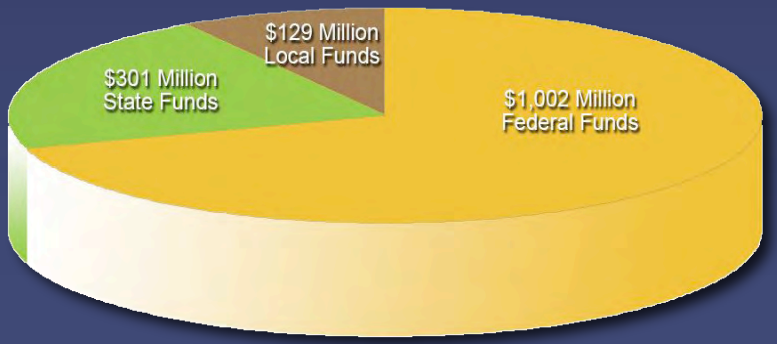
Santa Ana River Mainstem

Orange, Riverside, San Bernardino Counties

- Seven Oaks Dam
  - 350 Year flood event at dam site
- Prado Dam modifications
  - 190-year level of flood protection
- Channel improvements
  - 100-year level of flood protection in the City of Corona
  - 100-year level of flood protection in Orange County
  - 190-year level of flood protection in Lower Santa Ana River

Seven Oaks Dam

Prado Dam

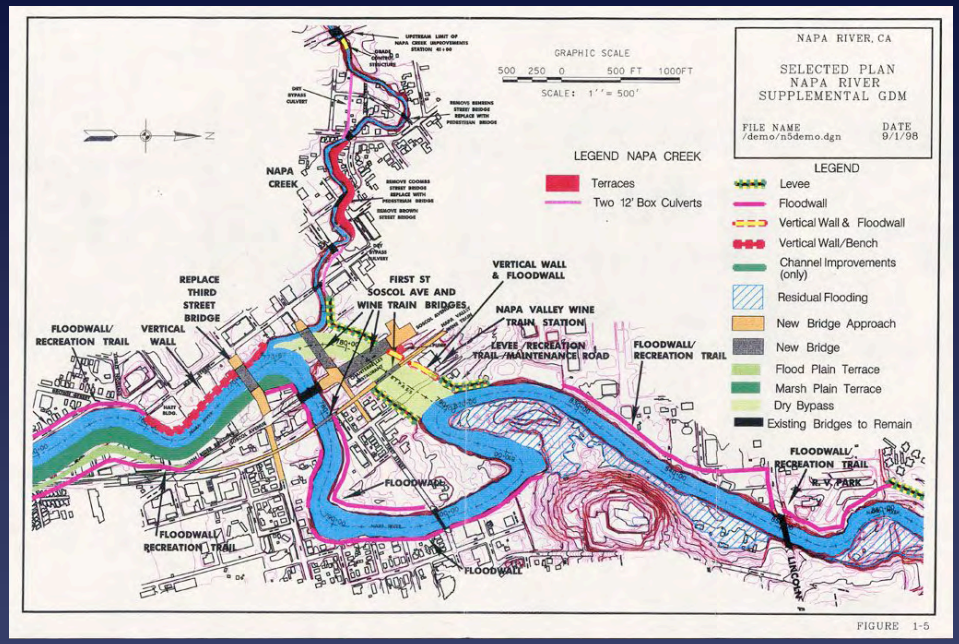


Total Cost: $1.43 billion

Napa Flood Protection Project

- Location: Napa, CA
  - 6.9 miles of Napa River; 1 mile of Napa Creek
- 100-year flood protection from Napa River and Napa Creek
  - Dike removal
  - Channel modifications
  - Bank stabilization
  - Levees and floodwalls
  - Bridge relocations
  - Pump stations
  - Recreation trails

Total Cost: $361 million



Estimated Total Project Cost Share Distribution

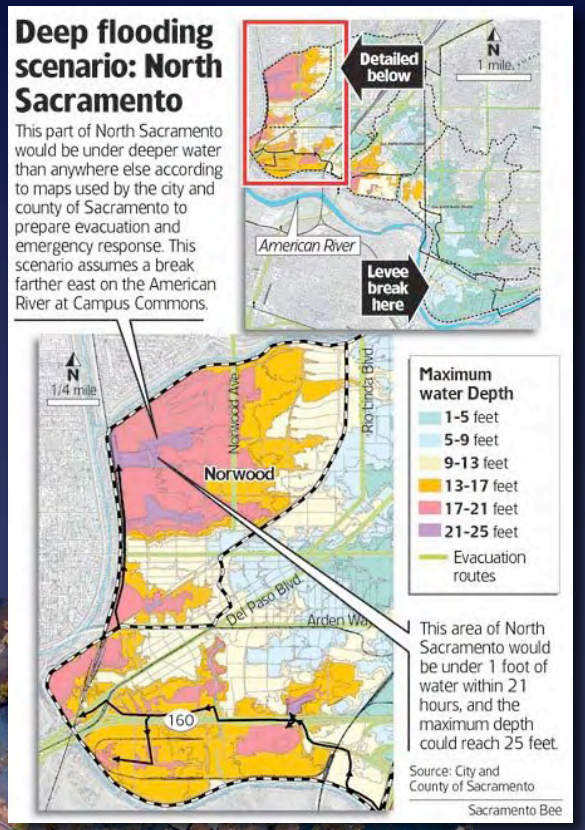
5. Floodplain Mapping Program

2006 Bond - $90 million for Floodplain Mapping:

- $ 87 million for Central Valley
- $3 million for Alluvial Fans

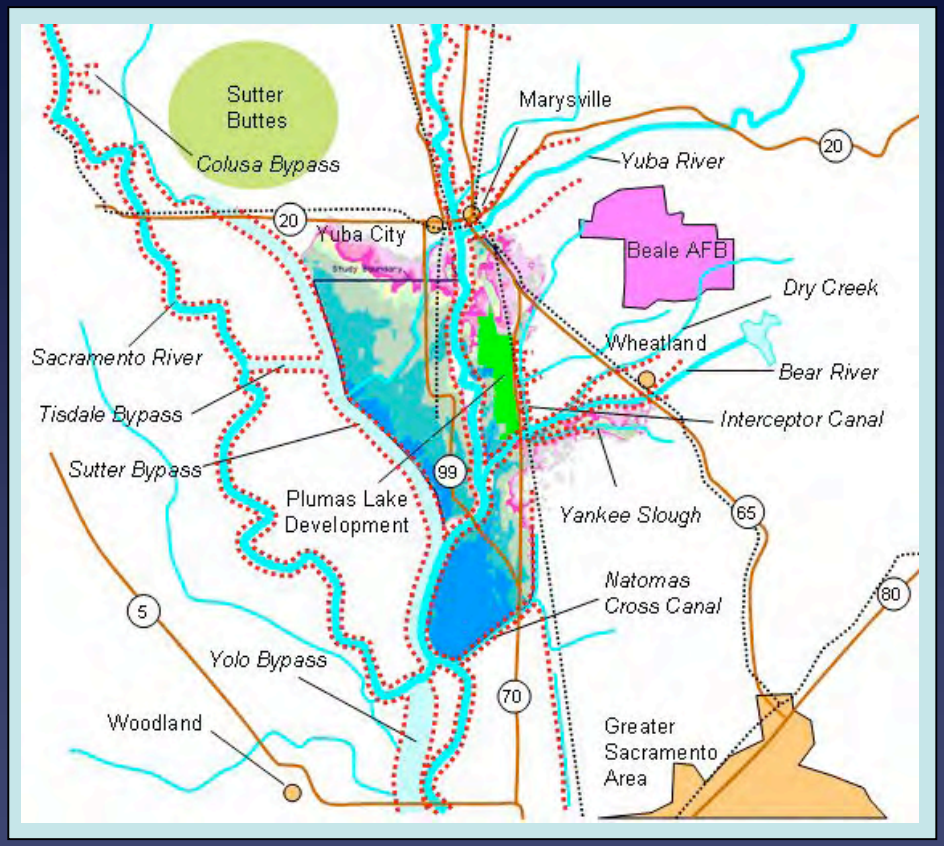
Floodplain Mapping Issues:

- Communities Rely on Floodplain Maps in Planning Development
- Current Maps *Woefully Inaccurate*
- To Update Maps, need:
  - Geotechnical data and analyses
  - Recent Surveys
  - Hydrologic and Hydraulic Analyses



Lower Feather River Floodplain Mapping Study Estimated Costs

Topography *(DWR Paid during Comp Study)*	$500,000
Hydrology & Hydraulics *(Corps)*	$400,000
Geotechnical Assessments *(Corps)*	$50,000
Mapping & Report *(DWR & Corps)*	$100,000
Total	$1,050,000



Notes:

- Study covers 56 river (100 levee) miles
- Cost is about $20,000 / mile
- Total does not include levee certification

6. Floodway Corridor Program

2006 Bond - $ 40 million for Flood Corridor Program

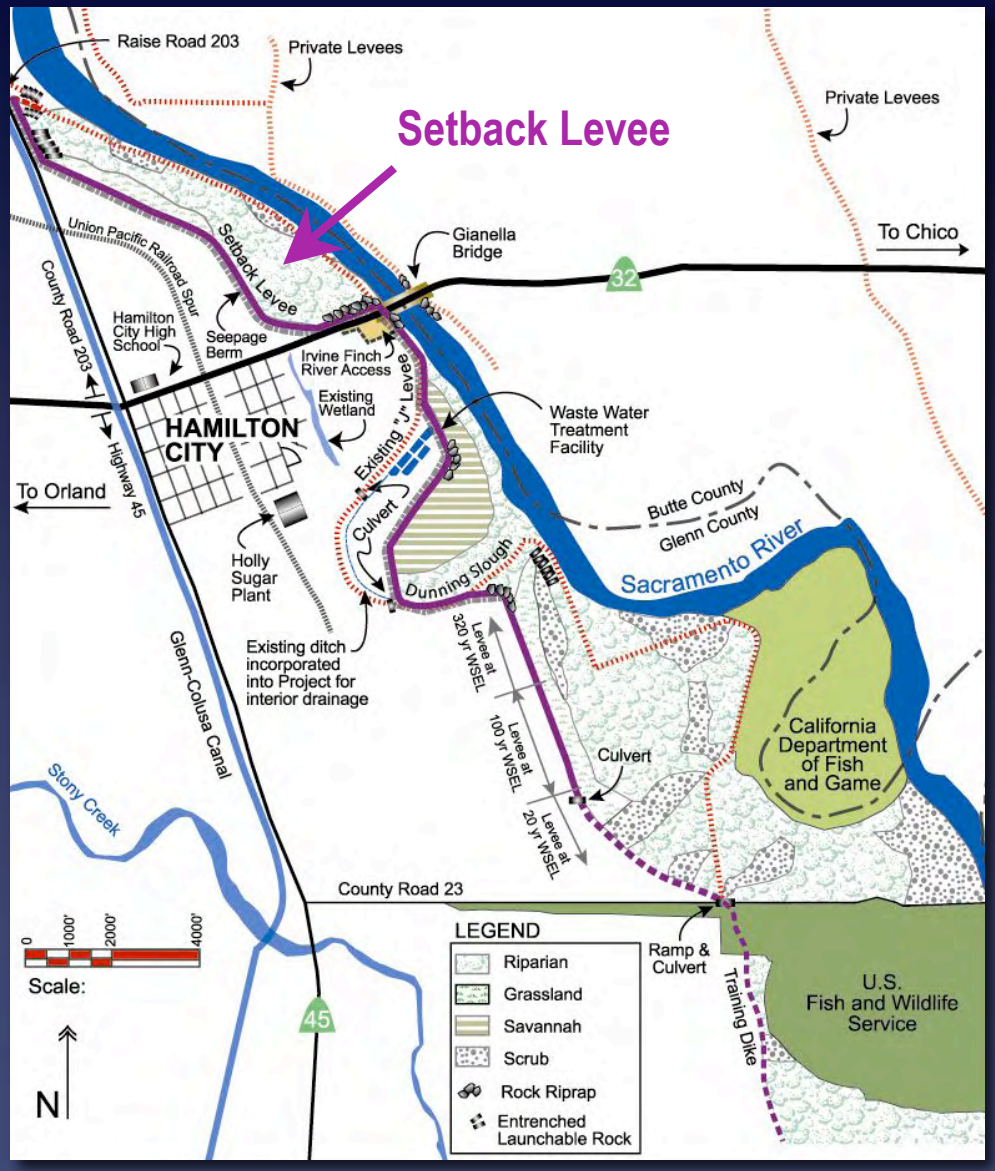
2010 Bond - $100 million for Flood Corridor Program

- Provides Flood Risk Reduction in Rural Communities
- Expands Floodways by:
  - Building New Levees
  - Setting Back Levees
  - Purchasing Flowage Easements
  - Adding Floodwater Detention Areas
- In Acquiring Land Rights, Priority is for Easements from Willing Sellers

6. Floodway Corridor Program

Hamilton City Flood Damage Reduction and Ecosystem Restoration

- Remove "J" Levee
- Construct 6.8 miles of setback levee
- Provides up to 90% confidence of passing a 75-yr event
- Restore 1,476 acres of native habitat communities



Estimated Cost: $44 Million

Cost Shares:

Federal	65 %
State	24.5 %
Local	10.5 %

Floodway Corridor Program

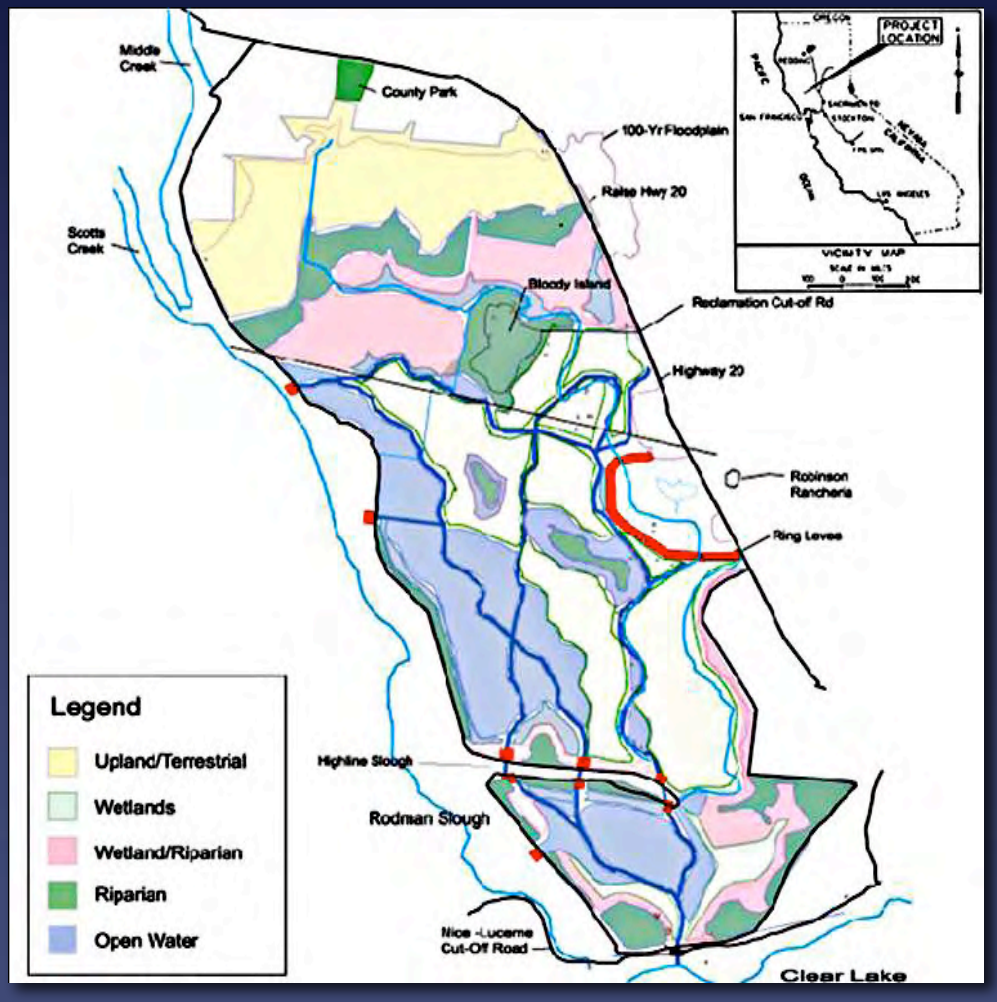
Middle Creek Ecosystem Restoration Project

- Remove residential and agricultural land from the 100-year floodplain
- Restore environment on over 1,600 acres by breaching deficient levees

Estimated Cost: $45 Million

Cost Shares:

Federal	65.0%
State	24.5%
Local	10.5%



Governor's FY 06-07 Flood Management Budget

Complements Bond Proposal by providing an additional $38.2 million and 32 positions

Second Year Budget Summary FY 2006-07 Request:	Additional Funding	Added Positions
Flood Project Maintenance	$ 13.3 million	14
System Reevaluation and Rehabilitation	$ 2.1 million	8
Emergency Response	$ 2.3 million	9
Floodplain Management	$ 3.0 million	1
Delta Levee Program	$ 15.0 million	0
Supplemental Funding	$ 2.5 million	0
	$ 38.2 million	**32**

An Additional $31 million is provided for Central Valley Flood Control Projects

Assembly Bill 1665 (Laird)

- State Plan of Flood Control and System Status Report
- Reports on Local Agency Levee Maintenance
- Notification of Flood Risk and Insurance Availability
- Mandatory Purchase/Offer of Flood Insurance
- Indemnification of State by Local Agencies
- State Abatement of Deficient Local Agency Maintenance
- Mitigation Banking
- Beneficiaries Provide Stable Funding for O&M

Environmental Permitting and Mitigation

- **State Environmental Requirements Include:**
- California Environmental Quality Act (CEQA)
- California Endangered Species Act (CESA)
- Streambed Alteration Agreements (F&G Code 1600)
- Surface Mining and Reclamation Act of 1975

Federal Environmental Requirements Include:

- National Environmental Policy Act (NEPA)
- Federal Endangered Species Act (ESA)
- Clean Water Act, Including:
  - Section 401
  - Section 404
- River and Harbors Act of 1899

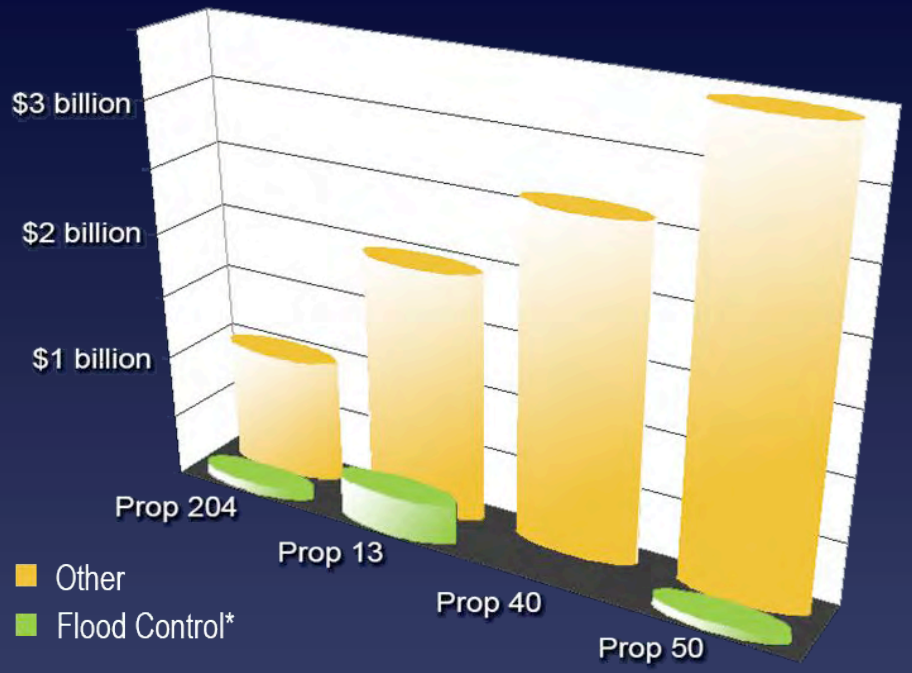
- Compliance with these acts, particularly with the federal ESA and Clean Water Act requirements, is a lengthy and expensive process

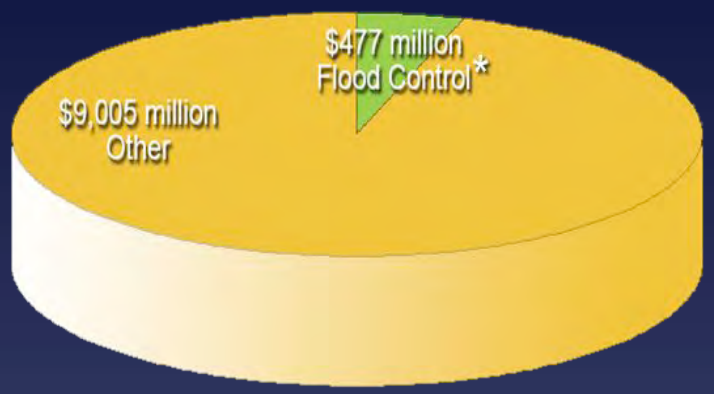
Environmental Permitting and Mitigation

Initiatives to Facilitate Flood Control Work:

- Interagency Collaborative Process Initiated in 2005
- Mitigation Banking
- Fund Permit Reviews in Resource Agencies (FY06-07 Budget)
- Cost Sharing Multi-Objective Projects

Previous Water Bonds





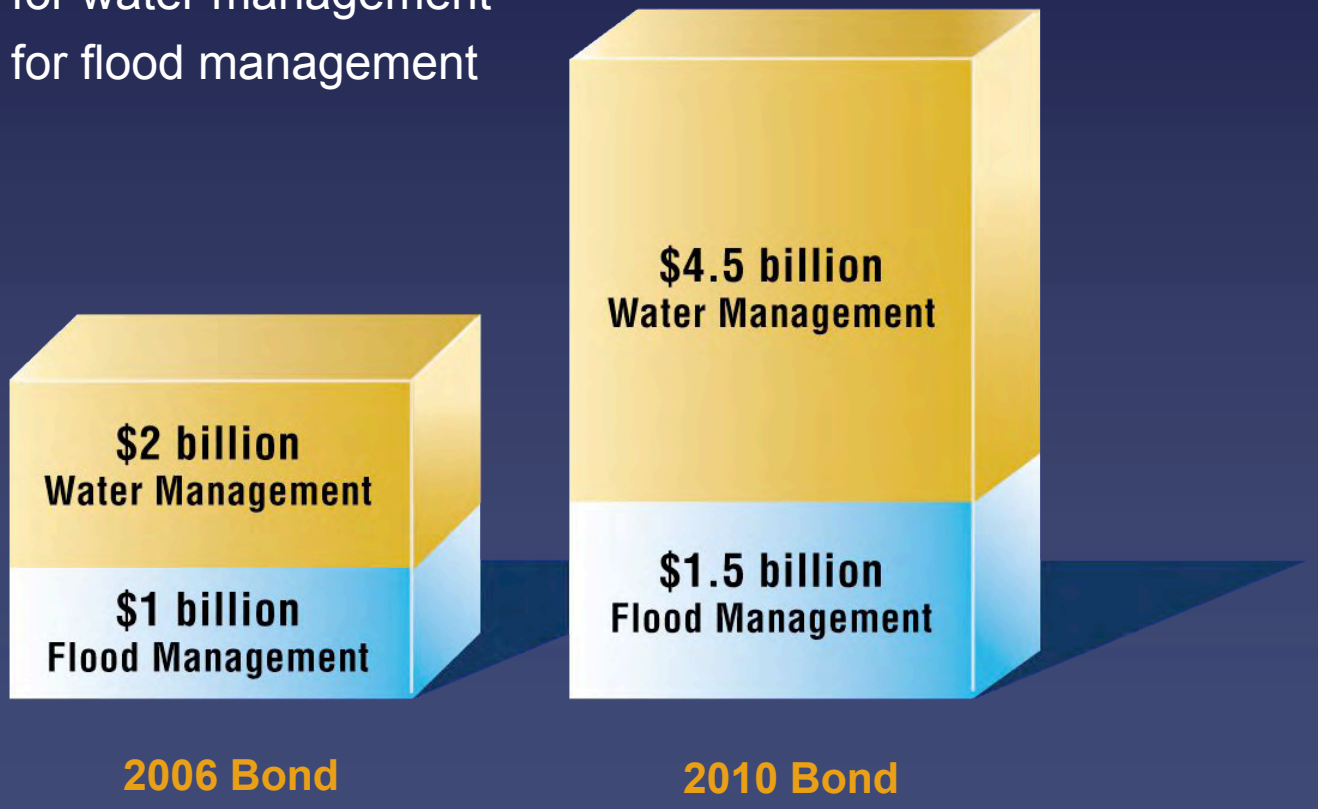
	Total	Flood Control *	Flood Control * %
Prop 204 *Safe, Clean, Reliable Water Supply Act*	$ 995 million	$ 85 million	9%
Prop 13 *Costa-Machado Water Act of 2000*	$ 1,970 million	$ 322 million	16%
Prop 40 *California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002*	$ 2,600 million	$ 0	0%
Prop 50 *Water Security, Clean Drinking Water, Coastal and Beach Protection Fund of 2002*	$ 3,440 million	$ 70 million	2%
Total	**$ 9,005 million**	**$ 477 million**	**5%**

*** includes related ecosystem restoration**

Building California's Water Future

Bonds will provide:

- $ 6.5 billion for water management
- $ 2.5 billion for flood management



Sound Investments in Water Management

- Sustained investment approach
- Match specific plans for water quality, water supply and flood protection improvements with investment strategy
- Largest investment in state history to maintain and improve flood and water management programs

Three components of state investment:

- Bonds
- Water Resources Investment Funds
- State Budget Increase

In Addition, Legislative Initiatives (e.g. AB 1665) will Complement these Investments